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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/585,563

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Ernst Ach

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4289

20694

7590

09/09/2008

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EXAMINER

KRUER, STEFAN

ART UNIT

PAPER NUMBER

3654

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/585,563	<b>Applicant(s)</b> ACH, ERNST	
	<b>Examiner</b> Stefan Krueer	<b>Art Unit</b> 3654	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19 -46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19 - 29, 32 - 39 and 41 - 46 is/are rejected.
- 7) ☒ Claim(s) 30 - 31 and 40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6 July 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Specification*

The amended title as filed 23 June 2008 is accepted.

### *Drawings*

The replacement sheet comprising Figures 3, 4 and 5 as filed on 23 June 2008 is accepted.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 19 – 20, 23 – 24, 27, 32 – 35, 38, 42 - 43 and 45 - 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinz et al (2003/0121729) in view of Takahashi et al (6,419,605).

**Re: Claims 19 – 20, 34 – 35 and 38**, Heinz et al disclose an elevator installation (Fig. 3) comprising:

- an elevator cage (E);
- a drive pulley (P2);
- at least one support means formed as a flat belt (10); and
- a drive engine (M) which drives the at least one support means, which carries the elevator cage, by way of the drive pulley;
- wherein the support means has, at least on a running surface facing the drive pulley, several ribs (25) of wedge-shaped cross-section which extend parallel in a longitudinal direction of the support means and further has several tensile carriers (15) oriented in the longitudinal direction of the support means, the

tensile carriers being distributed in a transverse direction of the support means;

- wherein the support means comprises a belt body formed of a synthetic elastomer and said belt body has a flat side; and
- wherein at least one of the drive pulley and deflecting pulley has grooves in its periphery formed complementary to the ribs of the support means.

however, Heinz et al are silent with respect to the size of their respective tensile carriers, a cross-sectional area of their support means and a cover layer or a fabric layer provided on their flat side.

Attention is directed to Takahashi et al who teach their tensile carriers (2) comprising approximately 20% of a cross-sectional area of their support means (based on each rib,  $d \times H \text{ less } 2 \times \frac{1}{2} \times hr \times C$ ), wherein the number, arrangement and orientation with respect to each rib and rib flank is in keeping with the instant invention, for reductions in vibration and noise as well as enhanced service life.

Though Takahashi et al does not teach their tensile carriers (2) comprising at least 25% of a cross-sectional area of their support means, in that Heinz et al disclose their tensile carriers and ribs of wedge-shaped cross-section, and Takahashi et al teaches their tensile carriers comprising approximately 20% of a cross-sectional area of their support means, it would have been an obvious to one of ordinary skill in the art, as a matter of optimization and experimentation, to provide the tensile carriers comprising at least 25% of a cross-sectional area of a support means in as much as the criticality of these percentage has not been disclosed yet such constructions have been anticipated by the prior art of record.

Furthermore, based on a consequential increase in their diameters to afford the desirable load-carrying and structural reinforcing aspects to a respective rib, a total cross-sectional area of all their tensile carriers would comprise 30% to 40% of a cross-sectional area of the support means.

Finally, Takahashi et al their belt body having a flat side with an additional cover layer (4) as known in the art for engaging guide pulleys.

It would have been obvious to one of ordinary skill in the art to modify the reference of Heinz et al with Takahashi et al for user comfort and increased uptime.

**Re: Claims 23 – 24, 32 and 43**, though Heinz et al disclose their ribs having a wedge-shaped cross-section with a flank angle of  $80^{\circ}$  -  $100^{\circ}$  as well as their tensile carriers arranged in a transverse direction of their support means, their disposition with respect to a perpendicular projection of a respective inclined flank of a respective rib is not reviewed.

Attention is directed to Takahashi et al who teach their tensile carriers arranged in a transverse direction of his support means, wherein at least 90% of the cross-sectional area of each tensile carrier lies within a corresponding perpendicular projection of a respective inclined flank of one of their ribs.

It would have been obvious to one of ordinary skill in the art to modify the reference of Heinz et al with the teaching of Takahashi et al for the benefits of dedicating tensile carriers to each rib for load-sharing, rib-alignment and performance.

**Re: Claims 27, 33, 42 and 45 - 46**, Heinz et al are silent with respect to the size of their respective tensile carriers, a rib-spacing and a thickness of their support means.

Attention is directed to Takahashi et al who teach each of their tensile carriers having a diameter comprising approximately 30% of a rib-spacing ( $d$ ), as well as 50% of a rib-spacing ( $hr$ ), and a minimum spacing ( $H_1$ ) between an outer contour of their tensile carrier and a surface of their rib (3) amounts to at most 20% of a total thickness ( $H$ ) of the support means (Col. 3, L. 37 – Col. 4, L. 10)

It would have been obvious to one of ordinary skill in the art to modify the reference of Heinz et al with Takahashi et al for the benefits of a support means construction affording appropriate load-carrying capacity and reductions in vibration and noise for performance and ergonomics.

**Claims 21 – 22, 25 – 26, 41 and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinz et al and Takahashi et al, as applied to Claims 19, 20 and 43, respectively, and in further view of Kopang (6,609,990).

Heinz et al and Takahashi et al are silent with respect to spacings between centers of two tensile carriers associated with a rib are smaller than spacings between the centers of adjacent tensile carriers associated with two adjoining ribs.

Attention is directed to Kopang, as previously cited, who teaches a flat belt having wedge-shaped ribs and spacings between centers of two tensile carriers associated with a rib are smaller than spacings between the centers of adjacent tensile carriers associated with two adjoining ribs, for feature of "... significantly reduced distance from a tensile carrier (sic) to a .... rib/pulley interface... causing (sic) a reduction of the magnitude of the deflection of the rib..." (Col. 1, L. 40 – 45 and Col. 4, L. 8 – 15, Fig. 's 4 - 6).

It would have been obvious to one of ordinary skill in the art to modify the invention of Heinz et al and Takahashi et al with the teaching of Kopang for the benefits of load-sharing and minimization of rib deflection - thereby, increased service life.

**Claims 28 - 29** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heinz et al and Takahashi et al, as applied to Claim 19, and in further view of Fischer (4,330,287).

Heinz et al are silent with respect to a specific disposition of their tensile carrier with respect to their ribs as well as a spacing of their tensile carriers in relation to each other.

Takahashi et al teach their tensile carriers arranged so that exactly three tensile carriers are associated with each of their ribs.

Attention is directed to Fischer who teaches his tensile carriers arranged in a transverse direction of his support means, so that exactly two tensile carriers are associated with each of the ribs, wherein at least 90% of the cross-sectional area of each tensile carrier lies within a corresponding perpendicular projection of a respective inclined flank of one of the ribs, said carriers having an outer diameter equal to 35% to 40% of a rib spacing (= B) - thereby teaching an alternative of two tensile carriers to a respective rib wherein said carriers are arranged symmetrically to an axis of symmetry

of the respective rib for feature of proper alignment of ribs to co-engaging grooves of sheave(s).

It would have been obvious to one of ordinary skill in the art to modify the invention of Heinz et al and Takahashi et al with the teaching of Fischer as an alternative arrangement of tensile carriers for utility.

**Claims 36 – 37 and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinz et al and Takahashi et al, as applied to Claim 19, in further view of Baranda et al (WO 00/37738).

**Re: Claims 36 – 37 and 39**, Heinz et al and Takahashi et al are silent with respect to a number of wires comprising their tensile carriers.

Attention is directed to Baranda et al who teach their tensile carriers (Fig. 7) comprising steel wire cables (37a, 37b, Page 10, Line 20), which are twisted from several strands in total containing more than 50 individual wires (29, 31, 35), whereby an outer diameter of their strands is less than 2 millimeters (Page 11, Line 26) to accommodate drive pulleys of small diameter, e.g. less than 100 millimeters (Page 10, Line 11), the latter for reduction of drive capacity and space.

It would have been obvious to one of ordinary skill in the art to modify the invention of Heinz et al and Takahashi et al with the teaching of Baranda et al for savings in operating costs and space.

### ***Allowable Subject Matter***

**Claims 30 – 31 and 40** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments filed 23 June 2008 have been fully considered but they are not persuasive.

The rejections of the previous office action were in response to the claim language. Applicant's arguments are based on the amended claim language applied to the prior art of record; consequently, this office action comprises a detailed response to Applicant's arguments.

With respect to applicant's statement that the cross-sectional area and number of tensile carriers are independent parameters when considering the total cross-sectional area of the tensile carriers, though aspects such as materials of construction are relevant in determining a load capacity of a support means, when considering tensile carriers of identical materials yet unique outer diameters and/or numbers of tensile carriers, load capacity is impacted. Furthermore, the teachings of reducing a distance between the tensile carriers and the apex of the ribs, for instance, to reduce noise and wear is a determinate in selecting a cross-sectional diameter-, number-, material(s)- and arrangement of tensile carriers.

In that the reference of Takahashi et al teaches a support means having tensile carriers comprising a cross-sectional area of approximately 20% of the support means, the limitation of a cross-sectional area of at least 25% of the support means would have been obvious to one having ordinary skill in the art, in terms of experimentation and optimization.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wetzel (4,235,119), Bissig et al (2008/0081721) and Schroder-Brumloop et al (6,138,799) are cited for reference of:

- teaching the preference of minimizing an amount of elastomer between tensile carriers in order to minimize loss of tensile strength of a support means;
- a flat belt having wedge-shaped ribs with tensile carriers wherein spacings between centers of two tensile carriers associated with a rib are smaller than spacings between the centers of adjacent tensile carriers associated with two adjoining ribs;
- an elevator counterweight equipped with support rollers around which a drive means runs in order to drive said counterweight, respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Kruer whose telephone number is 571.272.5913. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Cuomo can be reached on 571.272.6856. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

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/Stefan Kruer/

Examiner, Art Unit 3654

8 September 2008

/Peter M. Cuomo/

Supervisory Patent Examiner, Art Unit 3654